



IPW

PATENT  
Case SU-7190-A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

JONATHAN N. HOWARTH ET AL.

SERIAL NO.: 10/688,124

FILED: OCTOBER 17, 2003

METHODS FOR MICROBIOLOGICAL  
CONTROL IN AQUEOUS SYSTEMS

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

Enclosed herewith for consideration by the Examiner is a First Supplemental Information Disclosure Form PTO/SB/08A and PTO/SB/08B. There are 61 items listed, but only 21 are enclosed because the other documents listed are US Patents.

Respectfully Submitted,

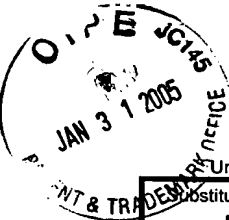
John F. Sieberth  
Reg. No. 17,704  
Associate Attorney of Record

Telephone: (225) 291-4600  
Facsimile: (225) 291-4606

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> First Supplemental (use as many sheets as necessary)				<b>Complete if Known</b>	
				Application Number	10/688,124
Sheet <b>1</b> of <b>4</b>				Filing Date	October 17, 2003
				First Named Inventor	Jonathan N. Howarth
				Group Art Unit	—
				Examiner Name	—
				Attorney Docket Number	SU-7190-A

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	US-70	US-3147219	09-01-1964	Paterson	
	US-71	US-4382799	05-10-1983	Davis et al.	
	US-72	US-4642194	02-10-1987	Johnson	
	US-73	US-4681948	07-21-1987	Worley	
	US-74	US-4711724	12-08-1987	Johnson	
	US-75	US-4767542	08-30-1988	Worley	
	US-76	US-4883600	11-28-1989	MacDonald et al.	
	US-77	US-4929424	05-29-1990	Meier et al.	
	US-78	US-4964892	10-23-1990	Hsu	
	US-79	US-4966716	10-30-1990	Favstritsky et al.	
	US-80	US-4995987	02-26-1991	Whitekettle et al.	
	US-81	US-5057612	10-15-1991	Worley et al.	
	US-82	US-5208057	05-04-1993	Greenley et al.	
	US-83	US-5264136	11-23-1993	Howarth et al.	
	US-84	US-5464636	11-07-1995	Hight et al.	
	US-85	US-5490983	02-13-1996	Worley et al.	
	US-86	US-5527547	06-18-1996	Hight et al.	
	US-87	US-5622708	04-22-1997	Richter et al.	
	US-88	US-5670646	09-23-1997	Worley et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> - Number <sup>4</sup> - Kind Code <sup>5</sup> (if known)				
	FP-21	GB- 1139188	01-08-1969	Padilla		
	FP-22	WO- 8802987	05-05-1988	Great Lakes		
	FP-23	WO- 9015780 A1	12-27-1990	Rakestraw et al.		
	FP-24	WO- 9932596 A1	07-01-1999	Rees et al.		
	FP-25	WO- 9955627 A1	11-04-1999	Yang et al.		
	FP-26	WO- 0153209 A2	07-26-2001	Albemarle Corp.		

Examiner Signature	Date Considered
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			Application Number	10/688,124
Sheet <b>2</b> of <b>4</b>			Filing Date	October 17, 2003
			First Named Inventor	Jonathan N. Howarth
			Group Art Unit	—
			Examiner Name	—
			Attorney Docket Number	SU-7190-A

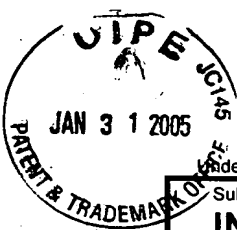
U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	US-89	US-5683654	11-04-1997	Dallmier et al.	
	US-90	US-5795487	08-18-1998	Dallmier et al.	
	US-91	US-5808089	09-15-1998	Worley et al.	
	US-92	US-5889130	03-30-1999	Worley et al.	
	US-93	US-5902818	05-11-1999	Worley et al.	
	US-94	US-5942126	08-24-1999	Dallmier et al.	
	US-95	US-6007726	12-28-1999	Yang et al.	
	US-96	US-6068861	05-30-2000	Moore, Jr. et al	
	US-97	US-6110387	08-29-2000	Choudhury et al.	
	US-98	US-6123870	09-26-2000	Yang et al.	
	US-99	US-6156229	12-05-2000	Yang et al.	
	US-100	US-6270722 B1	08-07-2001	Yang et al.	
	US-101	US-6284144 B1	09-04-2001	Itzhak	
	US-102	US-6287473 B1	09-11-2001	Yang et al.	
	US-103	US-6322822 B1	11-27-2001	Moore Jr., et al.	
	US-104	US-6448410 B1	09-10-2002	Howarth et al.	
	US-105	US-6495698 B1	12-17-2002	Howarth	
	US-106	US-6508954 B1	01-21-2003	Elnagar et al.	
	US-107	US-6565868 B1	05-20-2003	Howarth et al.	
	US-108	US-6638959 B2	10-28-2003	Howarth et al.	
	US-109	US-6680070 B1	01-20-2004	Howarth et al	

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Substitute for form 1449/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>		<b>Complete if Known</b>	
		Application Number	10/688,124
First Supplemental (use as many sheets as necessary)		Filing Date	October 17, 2003
		First Named Inventor	Jonathan N. Howarth
		Group Art Unit	---
		Examiner Name	---
	3 of 4	Attorney Docket Number	SU-7190-A

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	L-37	Carr, Anitra C., "Differential reactivities of hypochlorous and hypobromous acids with purified Escherichia coli phospholipid: formation of haloamines and haloaldehydes", Biochimica et Biophysica Acta, 1392, 1998, pp 254-264.	
	L-38	Hawkins, Clare L., et al., "Hypochlorite- and Hypobromite-Mediated Radical Formation and Its Role in Cell Lysis", Archives of Biochemistry and Biophysics, vol 395, no. 2, November 15, 2001, pp 137-145.	
	L-39	Howarth, J.N., et al. "A New, Bromine-Releasing Solid for Microbiological Control of Cooling Water", IWC-01-05, (Pittsburgh, PA: Engineers' Society of Western Pennsylvania, 2001), pp 1-7.	
	L-40	Kumar, Krishan, et al., "Kinetics and Mechanism of General-Acid-Assisted Oxidation of Bromide by Hypochlorite and Hypochlorous Acid", Inorg. Chem., 1987, vol 26, pp 2706-2711.	
	L-41	Mantilla-Sandholm et al., "Biofilm Formation in the Industry: A Review", Food Reviews International, 8(4), 1992, pp 573-603.	
	L-42	Nalepa, C.J., "New Bromine-Releasing Granules for Microbiological Control of Cooling Water," paper 03716 (Corrosion 2003 Houston, TX: NACE International, 2003), pp 03716/1-03716/15.	
	L-43	Nalepa, C.J., et al., "Strategies for Effective Control of Surface-Associated Microorganisms: A Literature Perspective," IWC-02-01 (Pittsburgh, PA: Engineers' Society of Western Pennsylvania, 2002), 19 pgs.	
	L-44	Nalepa, C.J., H. Ceri, and C.A. Stremick, "A Novel Technique for Evaluating the Activity of Biocides Against Biofilm Bacteria," paper 00347 (Corrosion 2000, Houston, TX: NACE International, 2000), pp 00347/1 - 00347/19.	
	L-45	Nalepa, C.J., et al., "The Activity of Oxidizing Biocides towards Legionella pneumophila and the Impact of Biofilms on its Control," paper 01278 (Houston, TX: NACE International, 2001, 21 pages.	
	L-46	Nalepa, C.J., et al., "The Control of Bacteria on Surfaces: Effectiveness of Bromine-Based Biocides towards Microbial Biofilms and Biofilm-Associated Legionella pneumophila," paper TP02-13 (Houston, TX: Cooling Technology Institute, 2002), 22 pages.	

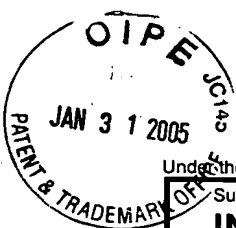
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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

First Supplemental

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4

of

4

**Complete if Known**

Application Number	10/688,124
Filing Date	October 17, 2003
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**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

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	L-47	Nalepa, C.J., et al., "Case Study: A Comparison of Bromine-Based Biocides in a Medium-Size Cooling Tower," paper TP98-09 (Houston, TX: Cooling Tower Institute, 1998), 22 pages.	
	L-48	Nalepa, C.J., J.N. Howarth, and F.D. Azarnia, "Factors to Consider When Applying Oxidizing Biocides in the Field," paper 02223 (Houston, TX: NACE International, 2002), 20 pages.	
	L-49	Nalepa, C.J., "25 Years of Bromine Chemistry in Industrial Water Systems: A Review", paper 04087 (NACE International 2004), 30 pages.	
	L-50	Vissers, Margret C.M., et al., "Comparison of human red cell lysis by hypochlorous and hypobromous acids: Insights into the mechanism of lysis", Biochem. J., vol 330, 1998, ppg 131-138.	
	L-51	Vissers, Margret C.M., et al., "Fatty acid chlorohydrins and bromohydrins are cytotoxic to human endothelial cells", Redox Report, vol 6, no. 1, 2001, ppg 49-55.	

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